

## A COMPARATOR CIRCUIT FOR DIFFERENTIAL SWING COMPARISON AND COMMON-MODE VOLTAGE COMPARISON

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### ABSTRACT

5        A comparator circuit includes at least one transconductance stage that receives  
two test voltages and two reference voltages. The transconductance stage produces two  
test <sup>currents</sup> ~~current~~ that are proportional to the test voltages and two reference currents. A  
switching circuit ~~that~~ is coupled to the transconductance stage. The switching circuit has  
two output terminals that are coupled to a conventional comparator stage. The switching  
10    circuit can combine the test currents with the reference currents to realize a differential  
swing comparison mode and a common-mode comparison mode as required for testing  
differential signals. Moreover, by disabling appropriate output signals from the at least  
one transconductance stage, a single-ended comparison mode is realized. By using two  
15    identical transconductance amplifiers, the non-linearity of the transconductance stage is  
advantageously canceled out.

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